AMENDMENTS TO THE CLAIMS

1. (Currently amended) ~~A sub-atmospheric downstream pressure control~~ An apparatus for controlling the pressure in a process chamber, ~~characterized by~~ said apparatus comprising:

a first flow restricting element (FRE), wherein said first FRE is an immobile flow restricting element~~, a process chamber~~, said first FRE located in serial fluidic communication with said process chamber and downstream ~~upstream~~ from said process chamber ~~first FRE~~;

a pressure control chamber (PCC) located in serial fluidic communication downstream from said first FRE;

a second FRE located in serial fluidic communication downstream from said PCC, wherein said second FRE is an immobile flow restricting element;

a gas source; [[and]]

a flow controlling device in serial fluidic communication downstream from said gas source and upstream from said PCC for controlling the PCC pressure and the pressure in said process chamber; and ~~to never exceed the pressure in said process chamber during normal operation, said flow controlling device capable of responding with a millisecond response time~~

a vacuum pump downstream from said second FRE for creating a sub atmospheric pressure in said apparatus.

2. (Currently amended) ~~A sub-atmospheric downstream pressure control~~ An apparatus as in claim 1, and further ~~characterized by~~ comprising:

a reactive gas source connected in serial fluidic communication upstream from said PCC; and

an abatement element located within said PCC.

3. (Currently amended) ~~A sub-atmospheric downstream pressure control~~ An apparatus as in claim 1, and further ~~characterized by~~ comprising:

a third FRE connected in serial fluidic communication downstream from said PCC;

an abatement chamber connected in serial fluidic communication upstream from said third FRE;

a reactive gas source connected in serial fluidic communication upstream from said abatement chamber; and

an abatement element disposed within said abatement chamber.

4. (Currently amended) ~~A sub-atmospheric downstream pressure control.~~ An apparatus as in claim 1 wherein:

said process chamber and said PCC are formed as compartments within a single process vessel; and

said first FRE is formed within the partition between said process chamber and said PCC.

5. (Currently amended) A wafer processing apparatus comprising:

a process chamber~~, said apparatus characterized by:~~,

a process reactive gas supply line from a process gas source in serial fluidic communication with said process chamber and upstream from said process chamber;

an upstream flow control device located in serial fluidic communication upstream from said process chamber and downstream from said process gas source;

a first flow restricting element located in serial fluidic communication downstream from said process chamber, wherein said first FRE is an immobile flow restricting element;

a pressure control chamber (PCC) located in serial fluidic communication downstream from said first FRE;

a second FRE located in serial fluidic communication downstream from said PCC, wherein said second FRE is an immobile flow restricting element;

a gas source; and

a flow controlling device in serial fluidic communication downstream from said gas source and upstream from said PCC for controlling the PCC pressure ~~to never exceed the pressure in said process chamber during normal operation, said flow controlling device capable of responding with a millisecond response time~~ and the pressure in said process chamber; and

a vacuum pump downstream from said second FRE for creating a sub atmospheric pressure in said wafer processing apparatus.

6. (Currently amended) A ~~sub-atmospheric downstream pressure control~~ wafer processing apparatus as in claim 5, and further ~~characterized by~~ comprising:

a reactive gas source connected in serial fluidic communication upstream from said PCC; and

an abatement element located within said PCC.

7. (Currently amended) A ~~sub-atmospheric downstream pressure control~~ wafer processing apparatus as in claim 5, and further ~~characterized by~~ comprising:

a third FRE connected in serial fluidic communication downstream from said PCC;

an abatement chamber connected in serial fluidic communication upstream from said third FRE;

a reactive gas source connected in serial fluidic communication upstream from said abatement chamber; and

an abatement element located within said abatement chamber.

8. (Currently amended) A ~~sub-atmospheric downstream pressure control~~ wafer processing apparatus as in claim 5 wherein; ~~a process chamber is located in serial fluidic communication upstream from said first FRE;~~

said process chamber and said PCC are formed as compartments within a single process vessel; and

said first FRE is formed within the partition between said process chamber and said PCC.

9. (Currently amended) A ~~sub-atmospheric downstream pressure control~~ wafer processing apparatus as in claim 5 wherein said ~~process is~~ wafer processing apparatus comprises a low pressure chemical vapor deposition (LPCVD) apparatus.

10. (Currently amended) A ~~sub-atmospheric downstream pressure control~~ wafer processing apparatus as in claim 5 wherein said ~~process is~~ wafer processing apparatus comprises a reactive ion etching (RIE) apparatus.

11. (Currently amended) A ~~sub-atmospheric downstream pressure control~~ wafer processing apparatus as in claim 5 wherein said ~~process is~~ wafer processing apparatus comprises a plasma enhanced chemical vapor deposition (PECVD) apparatus.

Claims 12 – 15 (Canceled)

16. (Currently amended) ~~A sub-atmospheric downstream pressure control~~ An apparatus for controlling the pressure in a process chamber, said apparatus comprising:

(a) a first flow restricting element (FRE) ~~and a process chamber~~ located in serial fluidic communication ~~upstream~~ downstream from said ~~first FRE~~ process chamber, wherein said first FRE is an immobile flow restricting element;

(b) a pressure control chamber (PCC) located in serial fluidic communication downstream from said first FRE;

(c) a second FRE located in serial fluidic communication downstream from said PCC, wherein said second FRE is an immobile flow restricting element;

(d) a gas source (208);

(e) a flow controlling device in serial fluidic communication downstream from said gas source and upstream from said PCC for controlling the PCC pressure and the pressure in said process chamber ~~to never exceed the pressure in said process chamber during normal operation, said flow controlling device capable of responding with a millisecond response time~~;

(f) a reactive gas source connected in serial fluidic communication upstream from said PCC; [[and]]

(g) an abatement element located within said PCC; and

(h) a vacuum pump downstream from said second FRE for creating a sub atmospheric pressure in said apparatus.